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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/084,336      | 02/28/2002  | Dieter Kerner        | 39509-177800        | 5608             |

26694 7590 08/29/2006

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EXAMINER

ZIMMER, MARC S

ART UNIT PAPER NUMBER

1712

DATE MAILED: 08/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/084,336

Applicant(s)

KERNER ET AL.

Examiner

Marc S. Zimmer

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3-5, 7 and 8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-5, 7 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. At issue is the meaning of, "re-mixing at 15 to 30 minutes." Claim 7 expounds upon the method of claim 4 which, itself, includes a mixing step as it's last step. Of course, the concept of re-mixing is understood but what is not clear is to what the time frame mentioned thereafter refers. A couple of possibilities are (i) re-mixing is performed 15-30 minutes after the first mixing operation has been stopped, or (ii) re-mixing is performed over a 15 to 30 minute interval. The Examiner supposes that other interpretations are feasible. Applicant should clarify the intended meaning of this phrase.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mangold et al., JP 2000-169132 in view of the teachings taken from Chapter 6 of the volume entitled *Handbook of Fillers*, 2<sup>nd</sup> Edition authored/edited by Wypych, Herzig,

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U.S. Patent # 4,101,499, Penneck, U.S. Patent # 4,001,128, and Cyprien Guy et al.,  
U.S. Patent # 4,886,661.

Mangold discloses the preparation of aluminum-doped silica to be used as, among other things, loading materials for polymers. A computer translation of the Specification was not available as of the time that the Examiner readied to prepare this Office action but, by all appearances, an equivalent disclosure appears to be provided in Mangold et al., U.S. Patent Application Publication No. 2003/0185739. The primary reference does not, on the other hand, teach the modification of the surfaces of the silica particles with an organosilicon compound. However, the treatment of filler with an organosilicon compound to facilitate its dispersion into organic polymer hosts is ubiquitously practiced in the formulation of polymer compositions as is evidenced by the teachings of the secondary references. Indeed, it is explained on page 312 of the attached Wypych document that fillers typically have hydrophilic surfaces that are not readily combinable with polymer materials, many of which are hydrophobic. Late in that disclosure, it is emphasized that silanes have taken a lead role as modifiers for inorganic fillers. Herzig at column 2, lines 19-35, Cyprien Guy at column 8, lines 13-24, and Penneck at column 2, line 53 through column 3, line 29 are cited to illustrate that, in addition to silanes, cyclosiloxanes such as octamethylcyclotetrasiloxane, silazanes, oligomeric telechelic polysiloxanes, and other organosilicon compounds have achieved similar status as compatibilizing agents for polymers. The Examiner purposely selected older patent documents to illustrate just how mature this concept is.

Concerning claims 4 and 7, none of the references that contemplate treating silica with an organosilicon compound expressly disclose acidifying or water-treating the surface per the requirements of claim 4 or the steps of claim 7, probably because the techniques have been known for so long that they no longer dignify an explanation. Nevertheless, the skilled artisan will appreciate that water treatment/acidification is carried out to promote hydrolysis/condensation of the organosilicon compounds at the filler surface and the conditions under which treatment occurs such as temperature and duration are easily determined as a matter of routine experimentation.

Claims 3-5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hemme et al., U.S. patent Application Publication No. 2002/0018741 in view of the teachings taken from Chapter 6 of the volume entitled *Handbook of Fillers, 2<sup>nd</sup> Edition* authored/edited by Wypych, Herzig, U.S. Patent # 4,101,499, Penneck, U.S. Patent # 4,001,128, and Cyprien Guy et al., U.S. Patent # 4,886,661.

Hemme teaches the preparation of aluminum-doped titanium dioxide that may be formulated into plastics (paragraph 23) but, as before, there is no mention of treating the titanium dioxide with an organosilicon compound. Wypych, Herzig, Penneck, and Cyprien Guy are all relevant for the same reasons as before.

In summary, it appears that Applicant considers their invention to be the extension of their inorganic oxide-doping technology to include the subsequent treatment of the particles with an organosilicon compound. However, where the reference contemplates adding the treated particles to a polymer as a filler, it is the

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Examiner's opinion that this treating step is unpatentable for the reasons provided *supra*.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 571-272-1096. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

August 25, 2006

  
MARC S. ZIMMER  
PRIMARY EXAMINER